Abstract of the Disclosure

TIRE SENSOR AND METHOD OF ASSEMBLY

A stress sensor includes two capacitor plates held in a spaced-apart relationship by a connector block situated therebetween. The connector block includes a plurality of rods protruding from opposite connector block sides and extending into a respective capacitor plate to attach peripheral portions of each capacitor plate to the connector block. A small air gap is maintained between peripheral portions of the capacitor plates by the inclusion of a spacer member. Terminal end portions of the protruding rods are deformed such as by the application of heat over an outer surface of the capacitor plates to retain the capacitor plates in a fixed mutual relationship. The terminal end portions of the rods further serve to prevent horizontal or vertical slippage between the capacitor plates when the sensor is vulcanized into rubber compounds such as in a tire. Once embedded within the rubber compound, the gap between the capacitor plates varies responsively to stress within the rubber compound whereby varying proportionately the capacitance of the device. A signal is directed into the sensor device and an antenna positioned proximate to the device detects the capacitance value between the capacitor plates. As the capacitance varies proportionately with stress within the material, the antenna detects the changes and transmits data to a remote reader that interprets the data to ascertain measured stress within the rubber compound.